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Methods of Treating a Silicon Carbide Substrate for Improved Epitaxial Deposition and Resulting Structures and Devices

Abstract

A method is disclosed for treating a silicon carbide substrate for improved epitaxial deposition thereon and for use as a precursor in the manufacture of devices such as light emitting diodes. The method includes the steps of implanting dopant atoms of a first conductivity type into the first surface of a conductive silicon carbide wafer having the same conductivity type as the implanting ions at one or more predetermined dopant concentrations and implant energies to form a dopant profile, annealing the implanted wafer, and growing an epitaxial layer on the implanted first surface of the wafer.